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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,284	08/31/2000	Vi-En Choong	MBHB00-025	2923

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EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/652,284	CHOONG ET AL.	
	Examiner	Art Unit	
	MY-CHAU T TRAN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,8-18,20-30,34,37-44,49-61,64-68,74 and 75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-18,20-30,34,37-44,49-61,64-68,74 and 75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/17/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Applicant's amendment filed 5/28/2004 is acknowledged and entered. Claims 34 and 44 have been amended.

2. Claims 6-7, 19, 31-33, 35-36, 45-48, 62-63, 69-73, and 76-80 were canceled and Claims 1-2, 34, 44, 74, and 75 were amended by the amendment filed on 5/02/2003.

3. Claims 1-5, 8-18, 20-30, 34, 37-44, 49-61, 64-68, and 74-75 are pending.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted by applicant filed on 2/17/2004 is acknowledged and considered as noted on PTO-1449.

Withdrawn Rejection

5. The rejections of claims 34, and 44 under 35 USC 112, second paragraph, as being vague and indefinite have been withdrawn in light of applicant's amendments of claims 34, and 44.

6. Claims 1-5, 8-18, 20-30, 34, 37-44, 49-61, 64-68, and 74-75 are treated on the merit in this Office Action.

Maintained Rejections

Claim Rejections - 35 USC § 102

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 64-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Cozzette et al. (US Patent 5,200,051).

Cozzette et al. disclose an electrochemical assay procedures and a biosensors that determine the presence and/or concentration of biological species (analytes) of interest (col. 11, lines 62-65). The biosensor comprises a catalytic electrode (input electrode) and reference electrode (output electrode), an adhesion promoter layer overlaid on the biosensor, and a bioactive layer that is immobilized on the adhesion promoter layer, which bioactive layer is a receptor of the immunological analyte of interest (col. 12, lines 20-25; fig. 2). The immunoassays are exemplified wherein the substrate convertor is an enzyme that hydrolyzes the substrate. This hydrolyzed substrate can then undergo reactions, which produce changes in the concentration of electroactive species (dioxygen and hydrogen peroxide), which are electrochemically detected with the biosensor, a ligand/ligand receptor-based (LLR-based) biosensor in this instance (col. 12, lines 7-16; fig. 14). The transduction of the analyte concentration into a processable signal is by electrochemical means, and these transducers may include amperometric, potentiometric, or conductimetric base sensors (col. 19, lines 31-56). Further, the type of electrical or electrochemical detection of claims 65-68 would be a choice as experimental design and is considered within the purview of the prior art. Therefore the method of Cozzette et al. anticipates the presently claimed method.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511).

Cozzette et al. disclose an electrochemical assay procedures and a biosensors that determine the presence and/or concentration of biological species (analytes) of interest (col. 11, lines 62-65). The biosensor comprises a catalytic electrode (input electrode) and reference electrode (output electrode), an adhesion promoter layer (conjugated polymer) overlaid on the biosensor, and a bioactive layer that is immobilized on the adhesion promoter layer, which bioactive layer is a receptor of the immunological analyte of interest (col. 12, lines 20-25; fig. 2).). The substrate comprise of silicon, glass, or plastic (col. 25, lines 36-44). The electrode comprise of gold or platinum (col. 25, lines 2-8). A metal-substrate adhesive comprise of titanium (col. 25, lines 55-61). The biosensor comprise of three conductive electrodes (see fig. 2).

The apparatus of Cozzette et al. does not expressly disclose that it includes a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes.

Ishikawa disclosed "[a] data handling system for effecting normalization of a number of signals of widely variable range, including a multiplexer that samples signals and a single gain control amplifier for normalizing the signals and operating upon the sampled input signals to

provide signals of optimum magnitude" (col. 1, lines 35-51). "[T]he normalized signals are then fed through a decoder or demultiplexer which is synchronized with the input multiplexer whereby the original input signals are readily available in normalized form." It is well known the output of the multiplexer provides each of the input signals in sequence on a single line (input electrodes) and these sequential or multiplexed input signals are fed to a gain control circuit from whence the output is fed to a decoder or demultiplexer which provides on lines (output electrodes) the outputs of the system in the form of normalized versions of inputs (col. 2, lines 27-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes as taught by Ishikawa in the apparatus of Cozzette et al. One of ordinary skill in the art would have been motivated to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes in the apparatus of Cozzette et al. for the advantage of providing a data processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8).

11. Claims 3-4 rejected under 35 U.S.C. 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511) as applied to claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 above, and further in view of Roberts et al. (US Patent 5,958,791).

Cozzette et al. disclose an electrochemical assay procedures and a biosensors that determine the presence and/or concentration of biological species (analytes) of interest (col. 11,

lines 62-65). The biosensor comprises a catalytic electrode (input electrode) and reference electrode (output electrode), an adhesion promoter layer (conjugated polymer) overlaid on the biosensor, and a bioactive layer that is immobilized on the adhesion promoter layer, which bioactive layer is a receptor of the immunological analyte of interest (col. 12, lines 20-25; fig. 2).). The substrate comprise of silicon, glass, or plastic (col. 25, lines 36-44). The electrode comprise of gold or platinum (col. 25, lines 2-8). A metal-substrate adhesive comprise of titanium (col. 25, lines 55-61). The biosensor comprise of three conductive electrodes (see fig. 2).

Ishikawa disclosed "[a] data handling system for effecting normalization of a number of signals of widely variable range, including a multiplexer that samples signals and a single gain control amplifier for normalizing the signals and operating upon the sampled input signals to provide signals of optimum magnitude" (col. 1, lines 35-51). "[T]he normalized signals are then fed through a decoder or demultiplexer which is synchronized with the input multiplexer whereby the original input signals are readily available in normalized form." It is well known the output of the multiplexer provides each of the input signals in sequence on a single line (input electrodes) and these sequential or multiplexed input signals are fed to a gain control circuit from whence the output is fed to a decoder or demultiplexer which provides on lines (output electrodes) the outputs of the system in the form of normalized versions of inputs (col. 2, lines 27-33).

The apparatus of Cozzette et al. modified by Ishikawa does not expressly disclose that it includes an interdigitated output and input electrodes.

Roberts et al. discloses an apparatus that the output and input electrodes are interdigitated (Abstract; col. 6, line 10-13; col. 7, line 66-67 and continue to col. 8, line 1). Roberts et al. also teach that the reference electrode is comprised of silver/silver chloride (col. 23, line 17-18 and claims 15 and 40). The support substrate comprises ceramic (col. 18, line 12-20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include an interdigitated output and input electrodes as taught by Roberts et al. in the apparatus of Cozzette et al. as modified by Ishikawa. One of ordinary skill in the art would have been motivated to include an interdigitated output and input electrodes in the apparatus of Cozzette et al. as modified by Ishikawa for the advantage of increasing signal detection such as increasing signal-to-noise ratio and decreasing ohmic signal losses (col. 8, line 2-10). The feature of interdigitation of the microelectrodes constitutes obvious variations in parameters that are routinely modified in the art. The art has shown that microelectrodes fabricated in an interdigitated array have inherent advantages in signal detection over more conventional electrode configurations (Robert: col. 8, line 2-37).

12. Claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayyem et al. (US Patent 6,290,839 B1) and Ishikawa (US Patent 3,619,511).

Kayyem et al. discloses an apparatus for electrical and electrochemical detection of molecular interactions in a sample solution (abstract; col. 2, line 26-36). The apparatus comprise of a supporting substrate (fig. 1C, ref. #30; col. 2, line 42), a plurality of porous, polymeric (conjugated polymer) pads (fig. 1C, ref. #25; col. 2, line 28-29 and 49-50; col. 8, line 41-54), and

a set of electrodes in contact with a plurality of porous, polymeric pads (fig. 1 (A-D), ref. #10 and 20; col. 2, line 28-29 and 42-43; col. 8, line 31-41). The electrodes are arranged to address a subset of test sites (fig. 1 (A-F); col. 2, line 40-42). Each output electrode is in electrochemical contact with an input electrode (col. 2, line 33-37). The linker (ref. #106, fig. 3A) is in contact with the polymeric pads (ref. #107, fig. 3A) and the probe molecules (ref. #100, fig. 3A) immobilized to the linker (col. 3, line 1-5; col. 6, line 4-13 and 39-46; col. 65, line 50-57). The apparatus further comprise of a reference electrode, a means for producing an electrical signal, a means for detecting changes in the electrical signal (col. 65, line 66-67 and continue to col. 66, line 1-9), and an electrolyte solution in contact with the polymeric pads (col. 2, line 27-31; col. 11, line 1-2). The molecular interactions between the immobilized probe molecules and target molecules are detected (col. 1, line 61-67 and continue to col. 2, line 1-2). The preferred electrodes are known in the art and include gold and platinum, which are known as conductive material (col. 8, line 7-17). It is also known in the art that electrodes are also comprise of an insulating material such as glass and the insulating material is the supporting substrate (col. 58, line 6-13; fig. 1 (A-E), ref. #30). The probe molecules are nucleic acids or peptides (col. 23, line 66-67 and continue to col. 24, line 1-5 and 26-65). The probes are covalently attached to the electrode by a variety of ways (col. 21, line 26-29).

The apparatus of Kayyem et al. does not expressly disclose that it includes a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes.

Ishikawa disclosed "[a] data handling system for effecting normalization of a number of signals of widely variable range, including a multiplexer that samples signals and a single gain

control amplifier for normalizing the signals and operating upon the sampled input signals to provide signals of optimum magnitude" (col. 1, lines 35-51). "[T]he normalized signals are then fed through a decoder or demultiplexer which is synchronized with the input multiplexer whereby the original input signals are readily available in normalized form." It is well known the output of the multiplexer provides each of the input signals in sequence on a single line (input electrodes) and these sequential or multiplexed input signals are fed to a gain control circuit from whence the output is fed to a decoder or demultiplexer which provides on lines (output electrodes) the outputs of the system in the form of normalized versions of inputs (col. 2, lines 27-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes as taught by Ishikawa in the apparatus of Kayyem et al. One of ordinary skill in the art would have been motivated to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes in the apparatus of Kayyem et al. for the advantage of providing a data processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8).

13. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayyem et al. (US Patent 6,290,839 B1) and Ishikawa (US Patent 3,619,511) as applied to claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 above, and further in view of Roberts et al. (US Patent 5,958,791).

Kayyem et al. discloses an apparatus for electrical and electrochemical detection of molecular interactions in a sample solution (abstract; col. 2, line 26-36). The apparatus comprise of a supporting substrate (fig. 1C, ref. #30; col. 2, line 42), a plurality of porous, polymeric (conjugated polymer) pads (fig. 1C, ref. #25; col. 2, line 28-29 and 49-50; col. 8, line 41-54), and a set of electrodes in contact with a plurality of porous, polymeric pads (fig. 1 (A-D), ref. #10 and 20; col. 2, line 28-29 and 42-43; col. 8, line 31-41). The electrodes are arranged to address a subset of test sites (fig. 1 (A-F); col. 2, line 40-42). Each output electrode is in electrochemical contact with an input electrode (col. 2, line 33-37). The linker (ref. #106, fig. 3A) is in contact with the polymeric pads (ref. #107, fig. 3A) and the probe molecules (ref. #100, fig. 3A) immobilized to the linker (col. 3, line 1-5; col. 6, line 4-13 and 39-46; col. 65, line 50-57). The apparatus further comprise of a reference electrode, a means for producing an electrical signal, a means for detecting changes in the electrical signal (col. 65, line 66-67 and continue to col. 66, line 1-9), and an electrolyte solution in contact with the polymeric pads (col. 2, line 27-31; col. 11, line 1-2). The molecular interactions between the immobilized probe molecules and target molecules are detected (col. 1, line 61-67 and continue to col. 2, line 1-2). The preferred electrodes are known in the art and include gold and platinum, which are known as conductive material (col. 8, line 7-17). It is also known in the art that electrodes are also comprise of an insulating material such as glass and the insulating material is the supporting substrate (col. 58, line 6-13; fig. 1 (A-E), ref. #30). The probe molecules are nucleic acids or peptides (col. 23, line 66-67 and continue to col. 24, line 1-5 and 26-65). The probes are covalently attached to the electrode by a variety of ways (col. 21, line 26-29).

Ishikawa disclosed "[a] data handling system for effecting normalization of a number of signals of widely variable range, including a multiplexer that samples signals and a single gain control amplifier for normalizing the signals and operating upon the sampled input signals to provide signals of optimum magnitude" (col. 1, lines 35-51). "[T]he normalized signals are then fed through a decoder or demultiplexer which is synchronized with the input multiplexer whereby the original input signals are readily available in normalized form." It is well known the output of the multiplexer provides each of the input signals in sequence on a single line (input electrodes) and these sequential or multiplexed input signals are fed to a gain control circuit from whence the output is fed to a decoder or demultiplexer which provides on lines (output electrodes) the outputs of the system in the form of normalized versions of inputs (col. 2, lines 27-33).

The apparatus Kayyem et al. as modified by Ishikawa does not expressly disclose that it includes an interdigitated output and input electrodes.

Roberts et al. discloses an apparatus that the output and input electrodes are interdigitated (Abstract; col. 6, line 10-13; col. 7, line 66-67 and continue to col. 8, line 1). Roberts et al. also teach that the reference electrode is comprised of silver/silver chloride (col. 23, line 17-18 and claims 15 and 40). The support substrate comprises ceramic (col. 18, line 12-20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include an interdigitated output and input electrodes as taught by Roberts et al. in the apparatus of Kayyem et al. as modified by Ishikawa. One of ordinary skill in the art would have been motivated to include an interdigitated output and input electrodes in the apparatus of Kayyem et al. as modified by Ishikawa for the advantage of increasing signal

detection such as increasing signal-to-noise ratio and decreasing ohmic signal losses (col. 8, line 2-10). The feature of interdigitation of the microelectrodes constitutes obvious variations in parameters that are routinely modified in the art. The art has shown that microelectrodes fabricated in an interdigitated array have inherent advantages in signal detection over more conventional electrode configurations (Robert: col. 8, line 2-37).

14. Claims 64 and 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511).

Cozzette et al. disclose an electrochemical assay procedures and a biosensors that determine the presence and/or concentration of biological species (analytes) of interest (col. 11, lines 62-65). The biosensor comprises a catalytic electrode (input electrode) and reference electrode (output electrode), an adhesion promoter layer overlaid on the biosensor, and a bioactive layer that is immobilized on the adhesion promoter layer, which bioactive layer is a receptor of the immunological analyte of interest (col. 12, lines 20-25; fig. 2). The immunoassays are exemplified wherein the substrate convertor is an enzyme that hydrolyzes the substrate. This hydrolyzed substrate can then undergo reactions, which produce changes in the concentration of electroactive species (dioxygen and hydrogen peroxide), which are electrochemically detected with the biosensor, a ligand/ligand receptor-based (LLR-based) biosensor in this instance (col. 12, lines 7-16; fig. 14). The transduction of the analyte concentration into a processable signal is by electrochemical means, and these transducers may include amperometric, potentiometric, or conductimetric base sensors (col. 19, lines 31-56).

Further, the type of electrical or electrochemical detection of claims 65-68 would be a choice as experimental design and is considered within the purview of the prior art.

The method of Cozzette et al. does not expressly disclose that it includes a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes.

Ishikawa disclosed "[a] data handling system for effecting normalization of a number of signals of widely variable range, including a multiplexer that samples signals and a single gain control amplifier for normalizing the signals and operating upon the sampled input signals to provide signals of optimum magnitude" (col. 1, lines 35-51). "[T]he normalized signals are then fed through a decoder or demultiplexer which is synchronized with the input multiplexer whereby the original input signals are readily available in normalized form." It is well known the output of the multiplexer provides each of the input signals in sequence on a single line (input electrodes) and these sequential or multiplexed input signals are fed to a gain control circuit from whence the output is fed to a decoder or demultiplexer which provides on lines (output electrodes) the outputs of the system in the form of normalized versions of inputs (col. 2, lines 27-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes as taught by Ishikawa in the apparatus of Kayyem et al. One of ordinary skill in the art would have been motivated to include a multiplexor connected to a set of input electrodes and a demultiplexer connected to the set of output electrodes in the apparatus of Kayyem et al. for the advantage of providing a data

processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8).

Response to Arguments

15. Applicant's arguments directed to the rejection under 35 USC 102(b) as being anticipated by Cozzette et al. (US Patent 5,200,051) for claims 64-68 were considered but they are not persuasive for the following reasons.

Applicant contends that Cozzette et al. do not anticipates the presently claimed method because 1) Cozzette et al. do not disclose selecting an input electrode in contact with a plurality of test sites, or selecting an output electrode in contact with a plurality of test sites, and 2) the test site are not in communication with other test sites. Thus the method of Cozzette et al. do not anticipates the presently claimed method.

Applicant's arguments are not convincing since the method of Cozzette et al. do anticipates the presently claimed method because 1) Cozzette et al. do disclose that the electrodes, i.e. input and output, are in contact with a plurality of test sites (see e.g. col. 16, lines 41-42; col. 24, lines 22-25; fig. 4), and 2) Cozzette et al. do disclose that test site are not in communication with other test sites (see e.g. 31-56). Thus, the method of Cozzette et al. do anticipates the presently claimed method, and the rejection is maintained.

16. Applicant's arguments directed to the rejection under 35 USC 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511) for

claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 were considered but they are not persuasive for the following reasons.

Applicant argues that the combination of Cozzette et al. and Ishikawa is not obvious over the presently claimed apparatus because there is no motivation to combine the teaching of Cozzette et al. and Ishikawa to produce the presently claimed apparatus. Thus the combination of Cozzette et al. and Ishikawa is not obvious over the presently claimed apparatus.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teaching of Cozzette et al. and Ishikawa is found in the reference of Ishikawa, i.e. the advantage of providing a data processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8). Thus, the combination of Cozzette et al. and Ishikawa is obvious over the presently claimed apparatus, and the rejection is maintained.

17. Applicant's arguments directed to the rejection under 35 USC 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511) as applied to claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 above, and further in view of Roberts

et al. (US Patent 5,958,791) for claims 3-4 were considered but they are not persuasive for the following reasons.

Applicant alleges that the combination of Cozzette et al., Ishikawa, and Roberts et al. is not obvious over the presently claimed apparatus because there is no motivation to combine the teaching of Cozzette et al. and Ishikawa to produce the presently claimed apparatus. Thus the combination of Cozzette et al., Ishikawa, and Roberts et al. is not obvious over the presently claimed apparatus.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teaching of Cozzette et al., Ishikawa, and Roberts et al. is found in the reference of Roberts et al., i.e. the advantage of increasing signal detection such as increasing signal-to-noise ratio and decreasing ohmic signal losses (Roberts: col. 8, line 2-10). Thus, the combination of Cozzette et al., Ishikawa, and Roberts et al. is obvious over the presently claimed apparatus, and the rejection is maintained.

18. Applicant's arguments directed to the rejection under 35 USC 103(a) as being unpatentable over Kayyem et al. (US Patent 6,290,839 B1) and Ishikawa (US Patent 3,619,511)

for claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 were considered but they are not persuasive for the following reasons.

Applicant contends that the combination of Kayyem et al. and Ishikawa is not obvious over the presently claimed apparatus because there is no motivation to combine the teaching of Kayyem et al. and Ishikawa to produce the presently claimed apparatus. Thus the combination of Kayyem et al. and Ishikawa is not obvious over the presently claimed apparatus.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teaching of Kayyem et al. and Ishikawa is found in the reference of Ishikawa, i.e. the advantage of providing a data processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8). Thus, the combination of Kayyem et al. and Ishikawa is obvious over the presently claimed apparatus, and the rejection is maintained.

19. Applicant's arguments directed to the rejection under 35 USC 103(a) as being unpatentable over Kayyem et al. (US Patent 6,290,839 B1) and Ishikawa (US Patent 3,619,511) as applied to claims 1-2, 5, 8-18, 20-30, 34, 37-44, and 49-61 above, and further in view of

Roberts et al. (US Patent 5,958,791) for claims 3-4 were considered but they are not persuasive for the following reasons.

Applicant alleges that the combination of Kayyem et al., Ishikawa, and Roberts et al. is not obvious over the presently claimed apparatus because there is no motivation to combine the teaching of Kayyem et al. and Ishikawa to produce the presently claimed apparatus. Thus the combination of Kayyem et al., Ishikawa, and Roberts et al. is not obvious over the presently claimed apparatus.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teaching of Kayyem et al., Ishikawa, and Roberts et al. is found in the reference of Roberts et al., i.e. the advantage of increasing signal detection such as increasing signal-to-noise ratio and decreasing ohmic signal losses (Roberts: col. 8, line 2-10). Thus, the combination of Kayyem et al., Ishikawa, and Roberts et al. is obvious over the presently claimed apparatus, and the rejection is maintained.

20. Applicant's arguments directed to the rejection under 35 USC 103(a) as being unpatentable over Cozzette et al. (US Patent 5,200,051) and Ishikawa (US Patent 3,619,511) for claims 64 and 74-75 were considered but they are not persuasive for the following reasons.

Applicant argues that the combination of Cozzette et al. and Ishikawa is not obvious over the presently claimed method because 1) there is no motivation to combine the teaching of Cozzette et al. and Ishikawa to produce the presently claimed method, and 2) Cozzette et al. do not disclose selecting an input electrode in contact with a plurality of test sites, or selecting an output electrode in contact with a plurality of test sites and Ishikawa does not cure the deficiency. Thus the combination of Cozzette et al. and Ishikawa is not obvious over the presently claimed method.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teaching of Cozzette et al. and Ishikawa is found in the reference of Ishikawa, i.e. the advantage of providing a data processing system that can handle or transmit a number of signals of widely varying range (Ishikawa: col. 1, lines 5-8).

Second, Cozzette et al. do disclose that the electrodes, i.e. input and output, are in contact with a plurality of test sites (see e.g. col. 16, lines 41-42; col. 24, lines 22-25; fig. 4).

Thus, the combination of Cozzette et al. and Ishikawa is obvious over the presently claimed apparatus, and the rejection is maintained.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MY-CHAU T TRAN whose telephone number is 571-272-0810. The examiner can normally be reached on Mon.: 8:00-2:30; Tues.-Thurs.: 7:30-5:00; Fri.: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW WANG can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mct
October 27, 2004

PADMASHRI PONNALURI
PRIMARY EXAMINER